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ClimateCare: a future direction for partnerships for socio-ecological sustainability.

How governance structures can be adapted to the imperatives of saving our environment.

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Introduction

Responding to climate change and ensuring the sustainability of our natural environment is the most important challenge facing mankind. It will shape every aspect of our lives from food security to international trade to medicine. Every policy choice will be affected by the imperative of achieving environmental, social and economic sustainability

Effective action to tackle climate change will require actions at all levels of society and governance – global, national, state, local government and the smallest of communities.

The difficulties with achieving this are complex and multilayered. It is the interweaving of substantial and difficult technical, social and behavioural changes needed with the fact that this has to occur through government, through the economy and business and through community and individual behaviour change that makes this such a complex and difficult problem to address.

This paper does not attempt to address all of these problems but rather to set out a possible method to integrate community and individual behaviour and desires for change with government legislative powers and policies.

Traditional approaches which rely on top down governance risk alienating the very people who should be included and engaged in partnerships, and fail to make use of the community capacity for devising and implementing superior solutions.

In addition the plethora of possible solutions and conflicting voices and imperatives has made this a problem of sense making. Addressing climate change requires a paradigmatic shift in how we go about the basic functions of society. How are we, at all levels of society, to understand what sort of problem this is and what kinds of thinking about it are possible?

Action is needed to develop methods to not simply engage communities and individuals but to clarify problems, to foster information sharing and to pool all available thinking power into solution making

Recently, the Australian Government announced details of its proposed Carbon Pollution Reduction Scheme and published a Green Paper on which it invited submissions. Unlike much debate about climate change policy, it did give some attention to the governance processes and institutional arrangements required to adopt and implement those policies.

This paper seeks to advance thinking about those governance issues.

The question then is how to set up linkages and systems of governance that take account of conflicting understandings, allowing sense making at all levels to occur, and institutionalises enmeshed citizen and government actions to solve the problem

What's the problem?

There is plenty of evidence that we are entering a period of not only climatic turbulence, but potential social turbulence as well (IPCC (Intergovernmental Panel on Climate Change) 2007).

Samantha Maiden (2008) writing on the Garnaut modelling of economic consequences of climate change suggests the economic consequences alone will be significant if no action is taken.

> For the first time, Professor Garnaut's report has released economic modelling on five key areas of impact: primary production, human health, infrastructure, tropical cyclones and international trade. It shows the impact of climate change will rise over time but the cost will be worse action is not taken.

> Unmitigated climate change causes real wages to be around 12 per cent lower than they would otherwise have been," the report states (Maiden 2008).

These projected economic effects pale into insignificance when compared with reductions in food production due to reduced rainfall and changes in rainfall distribution geographic ally and between seasons, losses of highly productive land due to inundation by rising sea levels, increased costs of energy inputs, artificial fertilizers and transport. Already this year we have seen reports of riots over the costs of basic foodstuffs, global stocks of which are falling; already, "humanity now consumes more food than it produces" (Cribb 2008). In the short-term, these shortages are being compounded by the diversion of agricultural land to bio-fuel production and the inter-related issue of "peak oil" – i.e. shortages due to the impending decline in available oil for transport and other purposes (Mitchell 2008).

For us to meet necessary international CO2 pollution reduction targets will require a massive change in our lifestyles. Monash researchers Honnery and Moriaty have estimated that private consumption of transport fuels (petrol and diesel) needs to fall by a minimum of 80 per cent (Honnery and Moriarty 2008). Such as change is possible but potentially highly disruptive socially.

One major difficulty is to know what to do that will maximise CO2 reduction without diverting time energy and money from quicker more favourable solutions.

Firstly there are a plethora of possible technical solutions. Some of these are extensions to or substitutes for current infrastructure – clean coal, solar, geothermal, wind power, wave power and other systems delivering energy as a centralised service. Some are decentralised – household or

individual business buildings with solar power or water heating, home water tanks, or decentralised sewage disposal as has been piloted at the Westwyck ecohousing community .

It's difficult for governments to know in advance which technical solutions should be implemented at the macro infrastructure level or implemented at a decentralised and local level. It is also notoriously difficult for governments to induce the necessary behaviour change to complement policy and structural changes.

Some parts of the solution require a change in habits of business to reconstruct their own ways of, manufacture and disposal and to take into account their products which were previously labelled as economic externalities – accidental by-products of an intentional manufacture. Other incumbencies on business are to enable consumers to consume differently, to have a choice of environmentally safe products or to choose to measure or modify the way they consume products and services.

At the consumer and household level there is the problem of what to choose for the best, what to limit and how to plan and adjust both living quarters and lifestyles, even if motivated to change, and the puzzle for governments and other authorities about what to do if people do not change.

At this level, as at all others, contradiction and perverse behaviour is highly probable.

Whether at the national, organisational or household level, the difficulty is to choose what form of change or mix of changes will best address climate change e.g.

- trying to choose what might be technically and socially best   when solutions are many and success indeterminate

- the tug of various contradictory motivations and interests about behaviour change, and the variety of organisational and governance levels at which these occur,

- the problem of getting change at the required rate,

- Knowing what changes will fit particular contexts and circumstances.

The temptation for each player is to assume the problem is created elsewhere. Governments assume it is a problem of behaviour change located within citizenry and minimise their own efforts by directing attention to save water campaigns and ride to work days while continuing infrastructure development like road construction and power generation as if it was business as usual. Their exhortations to change tend to be other directed, blanket and to ignore citizen context, individual willingness and particular community strengths.

Citizens on the other hand wait for "them" to do something about it, without adopting modest changes in living which collectively add up to non release of a great deal of CO2. Government exhortations are experienced as incongruent and unrelated to the normal activities and constraints of living. Changes are piecemeal and incoherent, and genuine concerns get lost in a welter of reactive responses to multiple issues or collapse under the weight of seeming insurmountability.

What is needed is a way to join up the two sides so that each is able to reflect on and change its own behaviour whilst facilitating change and reflection in the other.

Current models of solution making

1. Top down models

The most frequent response to large systemic problems is to treat them as problems which require a top down response.

Climate change is clearly a massive systemic problem. It is the most pervasive and dangerous market failure mankind has known. This market failure is a product of extraordinarily long lag times for "market signals" to be recognised, much less have effect, and the capacity of greenhouse gas emitters to externalise the impact of their actions. Cap and trade emissions trading schemes seek to partly redress this failure by re-designing the market to force emitters to recognise their impacts and provide incentives to reduce or eliminate emissions. Only government can enforce such a change to the framework within which business and other emitters operate. Indeed in many respects, particularly international cooperation and co-ordination of responses to a global problem, a top down governance model is the only feasible action. However this is not without its problems.

Problems with top down models

The coercive power of governments, although necessary, is not a sufficient condition for such changes to be accepted and reflected in behaviour. Attempts by governments to impose unpopular decisions are fraught with risks of populist backlash and political instability – the very antithesis of the conditions needed for effective, society-wide actions to address climate change

Top down models also run the risk of mismatching the solution to the context. The circumstances of those who are subject to regulation vary enormously and in ways in which it is often difficult for the regulator to have full knowledge of those variations. Accordingly the regulator has difficulty designing a regulatory regime that is appropriate in all circumstances.

Stewart Barr in analysing a number of case studies of top down government run climate change campaigns in Britain argues that they are usually based on poor or unrealistic models of behaviour change. He criticises such programs as lacking in theoretical rigour and omitting to acknowledge the role of different social and community groups and the types of responses individuals within these groups were likely to have (Barr 2008).

Secondly and as a consequence, those subject to regulation find themselves unwilling to accept regulatory decisions which seem insensitive to their particular circumstances. They are and do feel excluded from the decision-making process.

Participation aids decision quality and acceptance

A remarkable piece of research taking advantage of the diversity of levels of participation within one country has demonstrated dramatic effects on people's satisfaction with life. Frey and Stutzer studied the people living in a range of Swiss cantons with basically similar political structures but significant differences in the opportunities available to citizens to actually participate in policy decisions. Citizens of cantons with greater levels of democratic participation were more satisfied than their counterparts enjoying less participation. Non-citizens, who had no political rights to

democratic participation were also studied. Swiss citizen residents were more satisfied than their non-Swiss neighbours who lacked rights. People with greater opportunities to participate in the political life of the cantons in which they lived had clearly higher levels of life satisfaction (Frey and Stutzer 2000).

In a similar finding, Hammar and Jagers have shown that impositions such as the Swedish CO2 tax are more likely to be accepted as legitimate where seen to be fair (Hammar and Jagers 2007).

The explanation for these effects of equitable, democratic participation lies in part in peoples' responses to decision-making affecting risks, as shown by Arvai (2003).

In testing the factors that affected people's willingness to accept decisions affecting the risk to which they were exposed, Arvai has shown that they were more willing to accept decisions in which they had been involved even where the decision was not the one they preferred. This extends to people who had the opportunity to participate but chose not to. They had confidence in the process because they were able to relate to those who chose to participate. Their satisfaction with the process was more important than the actual outcome. He suggests that the benefits of participatory decision-making lie in the "higher quality decisions that are the product of more widely accepted decision processes" (Arvai 2003)p.281).

The "watermark Australia" project is a remarkable example of the value of giving people the opportunity to become involved in understanding and responding to environmental issues affecting them, their local communities and the nation (The Victorian Women's Trust 2007; Watermark Australia).

This empirical evidence shows superior outcomes are likely where governance arrangements and measures facilitate communication between citizens, allowing them to be engaged with decisions and actions which they perceive to be of significance to themselves and in which they feel included in collective decision-making. Such arrangements are at least a partial offset to some of the risks of top down governance.

It is also known that people are much more accepting of unpalatable changes if they perceive that the changes are affecting members of the community fairly. That is already a key factor in the global debate – rich and poor nations are seeking evidence that the impact of global measures on their populations will be equitable. Within countries, it has happened in war-time and it has been seen in recent public responses to water shortages in Australia. Governments have provided leadership and introduced rules recognised as generally fair to all.

On its own however engagement is not enough to solve problems of choice amongst barely understood technical solutions or of understanding policy problems of efficient resource allocation to alternative energy production or of sorting between local and national infrastructure changes as to which is most effective.

2. Participatory /direct democracy models

The solution might be seen to lie in more strongly participatory models of consultation and decision-making, however these too may have their problems.

Sherry Arnstein designed one of the earliest models of participatory decision-making. Her 1969 eight step ladder suggests that what is needed is good consultative decision-making.

She imagines a linear organisation of possibilities for citizen power which has as its extremes the control of the one group by the other. These range from government influencing citizenry in the form of manipulation to citizenry influencing government in the form of citizen control.

In this model the topmost rung is a form of citizen control in which the greater the citizen control, the smaller the domain of control. Thus she explains citizen control, "People are simply demanding that degree of power (or control) which guarantees that participants or residents can govern a program or an institution, be in full charge of policy and managerial aspects, and be able to negotiate the conditions under which "outsiders" may change them" (Arnstein para 3.8). The domain of application is schools, neighbourhoods, institutions and programs, all small domains of power and all unlikely particularly in America to have a systemic effect. "Citizen control' is not suggested by Arnstein as a solution for infrastructure or economic or broad social policy
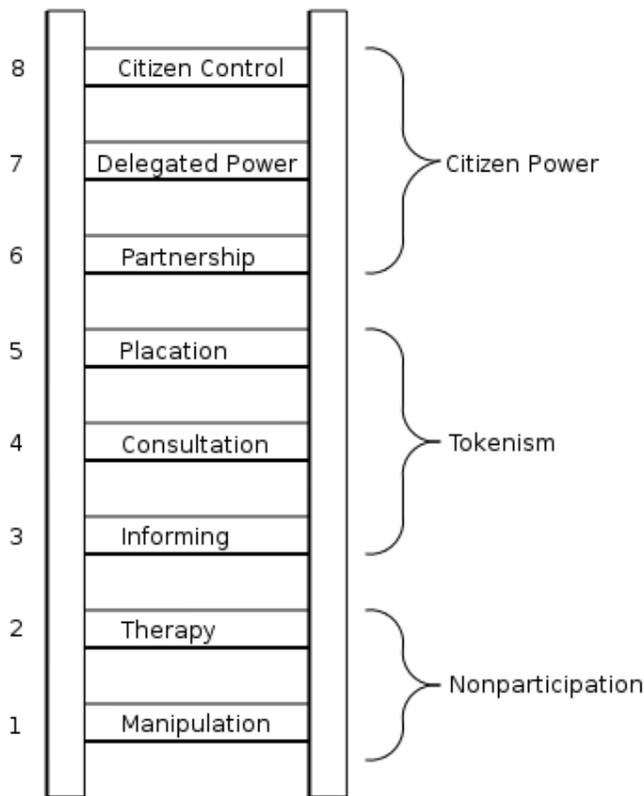

Figure 2. Sherry Arnstein's 1969 "Eight rungs on the ladder of citizen participation"

Source: (Arnstein 1969).

Versions of this model are still current. A more recent example is that of the Institute for Public Participation Their 2007 model, the IAP2 Spectrum of Public Participation constructs a similarly linear arrow of participatory progress - "Increasing level of public impact" which moves through the stages of "Inform consult involve collaborate, empower" The implicit promise to the public of the last is identified by them as "we will implement what you decide". Here upper levels of participation are limited to directing rather than being the source of governance, even though the size of the 'domain of power' is larger than for Arnstein (International Association for Public Participation 2007).

A third example which also draws attention to decision making solutions to governance problems is that of CIPRA, "Commission Internationale pour la Protection des Alpes" This organisation has been working in support of sustainable development in the European Alps since 1952.

It has undertaken a large research project "Future in the Alps" to identify major sustainability issues to be tackled. One of the sub projects is "New forms of decision-making" which has as its goal to examine decision-making and good governance with the aim of achieving more sustainable solutions and decisions (Commission Internationale pour la Protection des Alpes 2008).

While this project identifies ways to improve consultations and decision-making using a framework that includes the context of the decision "the procedure which finally leads to the decision: information, awareness raising, opinion building, negotiations etc. "(p 8 of "new forms of decision-making) it appears these are advisory recommendations for negotiating regional planning demands. Their target groups are "regional players and multipliers such as mayors, councillors, officials, entrepreneurs, members of NGOs, planners, regional management agencies and LEADER action groups" (CIPRA 2008b) However, the role they ascribe to participation is to influence and create forums for discussion at all levels of government and society; -this is also a goal of the ClimateCare program we advocate below.

Problems with participatory models

All three models demonstrate some shortcomings.

Firstly participatory models still imagine ultimate decision making as emanating from the top: they either sidestep (Arnstein 1969) or influence (Commission Internationale pour la Protection des Alpes 2008; International Association for Public Participation 2007) but do not usurp or replace central government power by installing citizenship power there. This is not however a failure of anything but their own implicit promise, bolstered by terms like "citizen control". The greater problem is that they assume decision-making as coming to a forum of exchange and negotiation with decisions or interests fully formed, to be traded, mediated and moderated depending on the strength of others equally fully formed understanding. They describe a limited appreciation of the role of informal social influence, negatively as in shame or positively as in validation (Scheff 1994; Scheff. 2003) for producing governance effects. They do not imagine governance as distributed decision-making in which the whole of society is involved. They miss the lessons of Foucault, later backed up by Bourdieu, who suggested that we each of us exert power of some sort over one another. Through moral codes, and expected behaviours as well as through the development of sets of principles, civil law, and 'universal laws' of humanity (such as human rights), we hold each other to account and modify each others' behaviour, but do so somewhat differentially according to the institutional

power and influence we also possess. . (Dreyfus, H.L. & Rabinow, P., 1983). (Foucault 1983, p.110) and (Bourdieu 1977, p.77)

The implications of this are that models of governance which recognise and incorporate distributed informal power will do better at creating change than ones which do not. This is a conclusion backed by Barr and Shaw whose study of the impact of "lifestyle groups" (i.e. clusters of individuals with similar behavioural characteristics) indicated that 'environmental action is adopted within the context of existing daily practices and adopting a radically alternative lifestyle can be perceived as being 'risky' in social acceptance terms" (Barr & Shaw 2008, p.9).

Secondly the problems of climate change are not purely decision-making problems. Decision making problems are of the kind which top down and participatory models are designed to solve,

In an environment which is at best ambiguous and at worst paradoxical and perverse, the question prior to 'What is the best way to make decisions?' is to ask 'What sense can be made in the first place, in order to make decisions?'. Which decisions to be made are not themselves clear cut, nor is it clear on which the values and expectations might they be based.

Because of their formal rational basis, decision-making solutions alone are inadequate to deal with such problems. Decision making deals best with stable environments with discernable parameters that create definitions and boundaries for problems. Sensemaking theory on the other hand deals with messy unexpected problems in diffuse settings or under ambiguous conditions. Sensemaking does not rely on rational formalities but instead studies the conditions of how people actually go about making sense - how people understand environments and take action - in naturalist settings. A leading Sensemaking scholar, Karl Weick quotes Reeds summary of March,

> (d)ecision-making preferences are often inconsistent, unstable and externally driven; the linkages between decisions and actions are often loosely coupled, and interactive rather than linear; the past is a notoriously unreliable guide to the present or the future;...and political and symbolic considerations play a central perhaps overriding role in decision making (Weick 1993, p.634)

The implications of this are that governance models need to create the conditions under which people can clarify how they understand as well as what they understand and thereby make sense of the problem, in concert with making decisions about it.

Thirdly, neither do these participatory models include action – they separate the taking of action from the making of decisions.

Action is concrete and relies on value judgements and concrete experience. Action according to Weick, also cements understanding and 'enacts' it into existence. (Weick 1993, pp.30-38).

We elaborate the roles of Sensemaking and enactment in relation to action as resolutions to problem solving below.

Suffice to indicate here that the implications of including action for governance models are that action matters as much in addressing problems by creating new understanding and resolution as do decisions.

Values and action

Sorting out this complexity and ambiguity requires what Flyvbjerg calls "value rationality" or Phronesis.

Flyvbjerg bases his account of Phronesis on Aristotles' identification of three kinds of knowing. The first two are the most familiar. The first of these is Episteme, or scientific knowledge which Flyvbjerg says produces knowledge which is invariant in time and space, and which is based on analytic rationality (Flyvbjerg 2001) p 54) The second is Techne. "The objective of techne is the application of technical knowledge and skills according to a pragmatic instrumental rationality…"(Flyvbjerg 2001, p.56). These are both very familiar components of modern knowledge making and also of the production of climate change solutions.

However, Phronesis, is less familiar and has no analogous contemporary term, but it is more necessary to master in dealing with climate change using knowledge of the sort that might be equated with wisdom.

> The person possessing practical wisdom (phronesis) has knowledge of how to behave in each particular circumstance that can never be equated with or reduced to knowledge of general truths. Phronesis is a sense of the ethically practical rather than a kind of science. (…) Phronesis thus concerns the analysis of values – "things that are good and bad for man" as a point of departure for action (Flyvbjerg 2001, p.57).

Through the fog of uncertainty and ambiguity and the plethora of possible actions and answers which emerge from attempting to deal with climate change , we need Phronesis to pull together the answers we get from Episteme and Techne. Phronesis requires good judgement and experience. In his book, "Making Social Science Matter", Flyvbjerg sets out four value rational questions we need to be asking; "Where are we going? Who gains and who loses by which mechanisms of power? "Is it desirable" and "What should be done?" (Flyvbjerg 2001, p.162).

Where are we going?

The problems alluded to above of understanding the problem about which decisions must be made can be thought of as a Sensemaking problem. The issues are ambiguous, not clearly defined, have no single or distinctive answer and affect people's everyday lives and normal activities.

These are signs of sensemaking problems

The conditions under which Sensemaking breaks down are akin to those now occurring with climate change.

According to Weick the conditions which lead to breakdown occur when an event previously seen as very low probability or inconceivable occurs, leading to sudden loss of meaning. Climate change was until recently as inconceivable as man landing on the moon was to early aircraft pilots, or invasion of

space aliens would be now. The enormity of the idea that humans might change something as large and essential as the weather is inconceivable on two counts, firstly that the systems is so large – global in fact - and secondly that it is not just literally uncontrollable to date but has entered language as a metaphor for uncontrollable unfathomable change – "as changeable as the weather". These events become subjectively meaningless because generally people "act as if events cohere in time and space and change unfolds in an orderly manner" (Weick 1999, p.633)(p 633) If this sense of order is severely disrupted, the effect is shattering. " ...people suddenly and deeply feel that the universe is no longer an orderly rational system.

What makes such an episode so shattering is that both the sense of what is occurring and the means to rebuild that sense collapse simultaneously " (Weick 1993, p. 633)

Sensemaking is controlled by the rules and standards for perceiving , interpreting and believing (Weick 1999, p.9) which form the basis of the cultural frameworks they build into which the interpret events.

Sensemaking is also controlled by expectations built up by experience but linked to these cultural frameworks. It depends on identity (Weick 1999, p.18)   -who you are within the setting s which identify you and create expectations – organisations neighbourhoods, nations and so on. Most of us have spent the last thirty years developing an economic identity. We are agents in and customers of an economy. This has been described as our "environment". We have got so used to living in this "environment" that we control by setting market regulation, competition policy interest rates and other adjustments, and which we feel acts like a steerable version of the weather – economic predictions using the same words, gloomy outlook, clear skies ahead etc, that we feel we ought to be in control of our environment and it comes as a shock – denied by some – to find we are not.

To find where we are going in this turbulent senselessness with which we have few tools for managing, we must deal with both uncertainty and ambiguity. Weick defines the difference as "In the case of ambiguity people engage in sensemaking because they are confused by too many interpretations whereas in the case of uncertainty they do so because they are ignorant of any interpretations" (p 91) Climate change and its solutions have produced both. There has been much ambiguity and many interpretations about what have caused climate change, distilling them more recently into a convergence of opinion. However uncertain interpretations abound about what to do about it and which solutions should take precedence. This is accompanied by confusion in both cases and attempts to sensemake by all who feel affected either by the problems or by the mooted solutions. .

What is needed here is to create the space and opportunity for people to create some sense about their own circumstances as well as understand and come to terms with the changes in understanding what has occurred and with changes expected of them personally as well as the cultural changes in orientation which are inevitable.

There are people in all sorts of walks of life who have a range of experiences, insights and knowledge which could help to draw a picture of the sort of solutions which might not only be feasible, but which create the sorts of stories and maps which make sensemaking possible,

Who gains and who loses; by which mechanisms of power?

Several scenarios are possible here. If existing industrial power brokers are accommodated with minimal disruption to their "business as usual", there is likely to be a catastrophic effect on the poor. Food shortages and rising sea levels will displace many and increase pressure on rich countries to take in environmental refugees and increase the likelihood of resource wars over water as well as minerals and food. Climate change may serve to entrench the acquisitive and defensive at the expense of the vulnerable. On the other hand, strong internal reflexive governance practices which bond together layers and interests in society may serve to provide a degree of protection from victimisation and conflict in a society which cares for its members with equal respect and intervenes to prevent crises.

Is it desirable?

Flyvbjerg makes it clear that for him in asking this question as a personal ethical question as well as in his practical experience with the ethical issues of planning in the city of Aalborg, the issue is that of the asymmetry of power. That can occur when the answers to social questions are technical and rational,. He argues that "...rationality is such a weak form of power that democracy built on rationality will be weak too" (Flyvbjerg 2001, p.155).

Flyvbjerg's answer to this problem is to create structures so that issues of value and interest can be kept in dialogue.

What is most desirable is every person to pull together, to mobilise the intellectual and action resources available within the community and in business and government.

What should be done?

This question is answerable on two levels – what should be done by governments to foster the sorts of activity that would lead to solutions to the problems of value rationality and sensemaking, and what sorts of subsequent actions and structures facilitate action about climate change?

Thirdly the problems are action oriented, and require enactment at all levels and all types of organisation and social grouping

Coghill and Lynch have drawn attention to political science based arguments for a shift to a distributed community based model of discussion, clarification and action (Coghill and Lynch 2008).

They cite Clark (2000) who suggested that "political experience increasingly demonstrates that it is at sub-national scales that civil society is most energetically and effectively mobilizing to reassert democratic answers to how development and environment should be balanced for particular people and groups" (Clark 2000, p.101). They note that recently, Thomas Willbanks indicated that "(w)ithin this complex pattern of often incompatible mosaics, we know that different scales tend to have different potentials and different limitations for action. To oversimplify considerably, local scales offer potentials for participation, flexibility, and innovativeness, while larger scales offer potentials for resource mobilization and cost-sharing" (Wilbanks 2007).i

In the case of climate change policy this suggests distributed knowledge and decision support processes which provide

- multiple connections between participants that cut across various levels (polycentric networks);

- sustained and adaptive organizations which allow for iterated interactions between participants;

- a focus on modest policy approaches that can afford to fail, and

- an authoritative framework established by government (Coghill and Lynch 2008).

Here participants include decision- and policy-makers, community members with legitimate interests, and researchers able to contribute knowledge support. Polycentric networks encourage innovation and flexibility; through redundancy they also protect the overall system from the failure of any one of its parts. Iterated interactions increase the relevancy and legitimacy of knowledge support for participants. Modest policy evolves through a "learning-by-doing" approach and does not risk a single large investment with a concomitant requirement to get it right the first time: a "don't bet the farm" strategy. Finally, to argue for strong community involvement is not to argue for no role for government, or simply a role in providing resources. Government retains a crucial role as the legitimate authority establishing the framework within which civil society and the market sector operate. In this context, a strong culture of inclusivity and accountability can help to defuse problems associated with populist backlash or political instability when difficult decisions must be taken.

Coghill & Lynch noted that this approach explicitly engages the dynamics of diffusion and adaptation in political systems, which is built on the propositions that human behaviour is motivated by problems and directed toward realizing goal values; that when attention is directed to a new strategy with demonstrable success, uptake is more likely; and that a new strategy is reinforced as a varied range of payoffs is experienced. These dynamics point the way to an explicit strategy of field testing a diverse range of responses to climate change. Indeed, "'One-size-fits-all' seldom fits at all" (Rayner and Malone 1998).

Appropriate structures, processes and relationships through which people can voice their interests, discharge their obligations and reconcile differences are keys to this resilience (Podger 2002). The complexity of climate change issues requires even more interaction among officials in local, national and international organizations, councillors and parliamentarians at all levels and the community which is 'claiming a larger voice in the policy decisions that will most affect them in the future' (Bourgon 2007, p.15 cited in Coghill & Lynch 2008).

This also enables the well of expertise to be tapped by using community expertise, at the local and societal levels.

The urgency of the situation dictates that partnerships between levels of government, NGOs and the community will be required to ensure social inclusion minimises the risks that actors will create barriers or perversities to the implementation of systems to deal with change.

Major changes in behaviour will be required at the most local level but will rely on global cooperation and the authority of national and sun-national legislative powers and policies.

ClimateCare[1]

To advance the level of public participation in accordance with the arguments above, a new public-community-partnership (PCP) (Scheurer and Newman forthcoming 2009) between government and local communities is proposed to tackle climate change through a ClimateCare program. The proposal addresses the desirability of: people in the community increasing their knowledge about climate change impacts and adaptive needs and possibilities; increasing the climate change resilience of the Australia's regions and communities; and supporting individuals and communities to get active on climate change. In other words, it addresses achieving behavioural change at the personal level through community involvement in applying and executing policy in accordance with government leadership.

Accordingly, within Australia, people require to know that changes affecting them are shared equitably across the State and between individual, household, business and other sources of CO2 emissions. For example, curbs on fuel for private car use must be matched by those on polluting industries. People also need to know that they have real opportunities to be involved in the actions to implement change.

Community involvement models

Fortunately, Australia has experience of three contemporary world-class community involvement programs from which to learn in implementing climate change and sustainability policy, linking local community with government. These are Landcare, aspects of the Country Fire Authority - Victoria (CFA) and Watermark Australia.

Landcare

Landcare was developed and introduced in Victoria in the 1980s to address land degradation through government support for local community action (Curtis and Lockwood 2000). It was adopted by the Australian Government and is also being increasingly recognised internationally, being "now underway in the USA, Philippines, South Africa and New Zealand" and promoted in other countries (Landcare Australia undated).

Landcare groups are concentrated in rural areas and membership is largely landholders:

> Landcare is a uniquely Australian partnership between the community, government and business to 'do something practical' about protecting and repairing our environment. More than 4,000 volunteer community landcare groups - including bushcare and urban landcare,

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[1] The ClimateCare section of this paper is based on Coghill and Lynch 2008.

rivercare, coastcare and sustainable agriculture groups - are tackling land degradation in every corner of Australia (Landcare Australia undated).

Landcare "group members identify issues (and) develop action programs" (Youl, Marriott, and Nabben 2006) p.5). These activities have close parallels with Weick's sense-making, albeit applying to rather more slow-moving crises than those affecting the high risk organisations (e.g. firefighing; aircraft carriers) he has studied. Landcare group members closely examine the crisis afflicting their local environment to understand its causes and develop both remedial and, more importantly, preventative measures. This occurs through a high level of interaction amongst members including onsite investigation, drawing on expert opinion and, if necessary, further research.

Landcare provides a ready-made, proven and widely known model on which to base a partnership between government and communities to address climate change issues and help people throughout Australia make the necessary changes to behaviour and practices. Group members learn from each other with the support of professional support staff and they help restore and conserve areas threatened with degradation. Their role is already defined so broadly as to readily embrace climate change issues. It exists "to help protect our natural environment" and some Landcare groups are using the language of sustainability (Landcare Victoria undated). In practice, Landcare plays a valuable role in building social capital in addition to successfully addressing environmental land management issues (Curtis and Lockwood 2000).

The success of Landcare and other land management bodies which complement it lies in -

> 1. Articulating and communicating separate roles for community groups and regional planning bodies.

> 2. Linking local community groups and regional planning bodies using Catchment Management Committees in ways that empower and resource local communities, facilitate effective regional planning, ensure accountability to national stakeholders, and support adaptive management approaches.

> 3. Developing rigorous and transparent cost sharing principles that can be used to allocate public money for work on private land where there are community benefits.

> 4. Development of an agency culture that supports community participation.

> 5. Creating robust, healthy community- agency partnerships.

> 6. Acknowledging the importance of professional management of volunteer programs.

> 7. Identifying flexible policy packages to accommodate the diversity of landholders' circumstances and motivations, including incentives for landholder s to maintain the supply of public benefits, particularly for biodiversity conservation (Curtis and Lockwood 2000)pp.70-71).

These features are readily adaptable to a ClimateCare program to involve the community in sense-making in relation to the nature and effects of climate change, adopting desirable responses and moving towards sustainable living.

However, there are lessons from other programs which could be added to strengthen the model.

CFA model

CFA brigades are remarkably effective in drawing men and women into community service. The CFA is one of the world's largest volunteer organisations of its type and operates in both rural and outer metropolitan areas.

The CFA is very much in the mould of a sense-making organisation as described by Weick. Brigades study and learn from the fires they fight. They contribute this understanding to their local Municipal Fire Prevention Plans. In doing so they help identify high risk areas, buildings and types of land use, advise on how to treat each risk and assist in determining who should be responsible for handling particular risks (Country Fire Authority 2003). They build awareness, offer education and advice to people in their communities on how to modify their behaviour and practices to reduce fire risks to themselves and their neighbourhoods and train their own members.

As with Landcare, professional staff provide expert support and training. Government assists with capital equipment and specialist facilities (Country Fire Authority)

Watermark Australia

The third model familiar to many Australians is Watermark Australia. The project was

> … a process of learning and community conversations on water from early 2005 to mid 2007. … The essence of the Watermark Australia process was that ordinary people (brought) together small groups, meeting monthly to discuss water, then sharing their thoughts, anecdotes and 'folk-wisdom', bringing it all back to the Watermark Australia team.

> What emerged was a shared vision for the future, a program of guiding principles and decisive action on water; people working together like never before, with new information, confidence and agreement to adopt solutions for water on many levels - households, local communities, regions, states, and nationally (Watermark Australia).

Thus Watermark Australia was also a sense-making process. It brought together diverse individuals within local communities to discover, share and develop knowledge in order to better understand a crisis emerging over months and years.

As with Landcare and CFA Brigades, Watermark was supported by expert advice and a secretariat. The secretariat helped identify and brief community leaders who convened local groups. Notes were developed to help group leaders stimulate discussion and assist groups to develop their knowledge and thinking on the issues. Scientists helped generate simply expressed technical information and also received feedback on public perceptions of key issues. There were two dialogues - series of discussions - the first building knowledge followed by a review by the secretariat and scientists of group outputs and the second aiming to identify prospective actions. The three-way exchange of views and information between (i) the secretariat and scientific experts, (ii) groups and the secretariat and (iii) groups and scientists was crucial in individuals moving progressively from holding opinions to accepting responsibilities for issues ("ownership of issues"), a preparedness to seek solutions and ultimately, readiness to accept and live with solutions.

Simultaneously, the scientists got valuable feedback which helped them to deal with technical matters with greater sensitivity to community values and to re-express information more clearly.

Watermark, like Landcare and CFA brigades, demonstrated the potent strength of facilitating and coordinating community based processes. These are the changes in individual and community attitudes to action which are essential to meeting climate change policy objectives.

These models also have parallels in the Vox Bandicoot "Sustainability Street" model.(Vox Bandicoot undated)

ClimateCare model

ClimateCare would combine and build on the best features of these successful models.

We propose that ClimateCare be established to complement Landcare. It would not subsume Landcare, although some Landcare groups may choose to become ClimateCare groups. Similarly, other groups could choose to become ClimateCare groups, subject to demonstrating the necessary potential to do so successfully.

Community-based climate action groups such as Lighter Footprints (Lighter Footprints undated) already exist in many Australian communities. They bring together enthusiastic, committed members of their communities, who wish to help each other, share ideas and experiences, improve public awareness, promote more sustainable living and encourage public policy orientated to sustainability. These groups provide fertile ground for building a network of community-based climate actions groups modelled on Landcare, the CFA and the Watermark Australia process.

Building on the strengths of Landcare and lessons learned from the CFA, Landcare and Watermark Australia, we propose that the Government investigate establishing a ClimateCare model.

ClimateCare would promote local take up of initiatives to reduce carbon emissions through actions based on analysis of and reduction in consumption of energy, goods and services. It would be facilitated with a light hand at state level, and could be supported by local government. Its strength would be the motivation and drive of local community groups.

The government support would be largely through the provision of information, access to scientific expertise and support for seminars and workshops. This way, the government could review the work of the groups and any need for refinement of the model.

Local groups (established or newly formed) would be attracted to join ClimateCare for the access it provided to information, training and the advice of scientific experts, rather than to grants or equipment. Individuals and families would be encouraged to join established groups or form new groups.

ClimateCare's features would include:

1. Articulating and communicating separate roles for community groups and Commonwealth, State, Territory and local government bodies;

2. Linking local community groups ("ClimateCare groups"), local government and Commonwealth, State and Territory governments, using existing community-based agencies where available and sponsoring their establishment in other cases, in ways that empower and resource local communities, facilitate effective regional planning, ensure accountability to national stakeholders, and support adaptive sustainability management approaches

   - Any group accepting the objectives of ClimateCare and the use of its resources for related purposes would be entitled to become a ClimateCare group

   - ClimateCare groups would have legal status similar to Landcare groups (i.e. each would be or become an incorporated body or become a member of an incorporated body with rules allowing groups that comply with the objectives of a ClimateCare group to join it) (Department of Primary Industries (Victoria) Incorporation for landcare groups 2008)

   - Local community ClimateCare groups could include Landcare groups, voluntary environmental action groups (e.g. CERES, Lighter Footprints, Sustainability Street Villages) and new groups which emerge in response to government support for ClimateCare

   - ClimateCare groups would be autonomous and not subject to government direction or restrictions on public comment

   - Local government would be empowered to

       - support the establishment of ClimateCare groups within their communities

       - to take a pro-active role in incorporating sustainability into the many planning decisions it makes affecting land use and economic and social development and

       - Community-based agencies which could be encouraged to participate in ClimateCare include catchment management committees, neighbourhood houses and learning centres;

3. ClimateCare groups would -

   - Be supported by

       - a secretariat to advise and assist community leaders in establishing and maintaining groups, to receive, evaluate and communicate feedback from groups and to liaise with scientific experts

       - expert advice from and feedback to scientists

       - coordinators (usually part-time or shared between ClimateCare groups) similar to Landcare coordinators (Department of Primary Industries (Victoria) Activities of a landcare coordinator 2008).

- Inform and educate people in their communities on achieving sustainability and on global, national and state targets in a similar way to Landcare e.g. site visits, demonstration sites, displays, workshops and forums

- Share ideas and experiences on achieving more sustainable behaviour and practices

- Help each other through working bees and other activities

- Assist elderly, disabled and other people with limited capabilities to adopt more sustainable lifestyles

- Join together in community projects to introduce more sustainable behaviour and practices

- Facilitate access to public subsidies, grants, other funding and advice on governance arrangements, measures and technology orientated towards sustainable behaviour and practices by individuals, households, businesses and communities

- Monitor local progress towards sustainability

- Build social capital through engaging their local communities

- Collaborate in networks of ClimateCare groups;

4. Development of a culture within government, public sector agencies and private providers of public services that supports participation by ClimateCare groups;

5. Creating robust, healthy community- agency partnerships;

6. Acknowledging the importance of professional management of volunteer programs;

7. Developing rigorous and transparent cost sharing principles that can be used to allocate public money for work on privately owned land and facilities where there are community benefits

- ClimateCare groups would be eligible for professional management and funding support in similar ways to Landcare groups;

8. Identifying flexible policy packages to accommodate the diversity of citizen circumstances and motivations, including incentives for citizens to maintain the supply of public benefits, particularly for improving sustainability;

9. Providing for joining up of community and government, enabling each to reflect on and change its own behaviour whilst facilitating change and reflection in the other.

The following table compares ClimateCare with other public-community-partnerships.

Community involvement programs compared.

Feature	Landcare	Country Fire Authority	Watermark Australia	ClimateCare
Governance	− National and state administrative infrastructure − Local groups largely autonomous	− State legislation and administrative & coordinating infrastructure − Local brigades largely autonomous	− Watermark Australia administrative infrastructure and coordination. − Links to scientific expertise. − Local groups largely autonomous	− State secretariat administrative and coordinating infrastructure − Scientific expert advice and two-way feedback − Local groups largely autonomous − Participatory decisions and sense making opportunities?
Funding (including sponsorship)	− Grants for equipment and plantables − Salaries for co-ordinators − Members voluntary	− Grants for equipment Training facilities − Salaries for regional officers − Members voluntary	− Funded by independent donors to VWT − Participants voluntary − Program of discussion topics prepared from Watermark Australia team's own reading, research and discussion with water experts	− Grants for equipment − Training opportunities − Grants for targeted action − Salaries for secretariat − Support for scientific input − Coordinators (usually part-time or shared between ClimateCare groups)

Community involvement programs compared.

Feature	Landcare	Country Fire Authority	Watermark Australia	ClimateCare
				− Members voluntary
Supervision & training	− Workshops and conferences	− Local brigades train own members − Specialist training by CFA	− Group Convenors brought together small groups	− Workshops and conferences, supported by co-ordinators − Notes to assist groups with ClimateCare processes and technical issues
Activities	− Revegetation − Fencing − Weeding − Information dissemination (latest research, government incentives & programs, new tools & methods etc) − Fund-raising	− Responding to a variety of fire and emergency incidents − Fire safety building inspections − Delivering community awareness, education and safety programs − Post incident analysis and fire investigation − Fire prevention planning and land use planning at a	− Group Convenors convene monthly meetings to discuss water (e.g. prepared topics), over stated period - 4 months − share their thoughts, anecdotes and 'folk-wisdom', − Group Convenors bring these back to the Watermark Australia team. − Validation process, and	− Information dissemination (latest research, government incentives & programs, new technologies & practices etc) − Feedback to scientific experts and to secretariat, and to government at local, state and federal levels − Neighbourhood by neighbourhood household energy auditing & retro-fitting − Neighbourhood by neighbourhood household water consumption auditing and retrofitting of water saving and

Community involvement programs compared.

Feature	Landcare	Country Fire Authority	Watermark Australia	ClimateCare
		municipal level − Working together with Forest Industry Brigades.	second run of sessions over four months with input from expert group − Findings written up by secretariat with input from experts	recycling technology − Promotion of more energy efficient transport means and routes − Promotion and supervision of walking school bus − Operating a local household carbon budgeting scheme with emissions trading − Bike hire − Electric car hiring & pooling − Energy efficient power tool & appliance hire − Promotion and Maintenance of local, decentralised power supplies − Public landscaping/traffic calming − Trouble-shooting

The table above compares ClimateCare with Landcare, CFA Brigades and Watermark Australia. It shows the common features and strengths which are proposed to be incorporated in ClimateCare.

ClimateCare could be promoted internationally in the same way as Landcare.

Complementary programs

A number of program already exist which could be easily integrated with ClimateCare and extended nationally. A number are associated with the Australian Commonwealth Government's "Designer Carrots" program of market-based natural resource management change (Australian Government 'Designer carrots'). They include BushTender and EcoTender, both administered by the Victorian Government.

Bushtender

BushTender is an auction-based approach to improving the management of native vegetation on private land. Under this system, landholders competitively tender for contracts to better protect and improve their native vegetation. Successful bids are those that offer the best value for money, with successful landholders receiving periodic payments for their management actions under agreements signed with the Department of Sustainability and Environment (Victoria). These actions are based on management commitments over and above those required by current obligations and legislation (Department of Sustainability and Environment Victoria).

Ecotender

EcoTender involves a competitive tender process that creates the incentive for landholders to reveal the cost to them of undertaking the actions in their bids. Landholders' bids are assessed as a function of the environmental benefits they offer and the cost of their bid. Contracts are offered to those who produce the most environmental value for money (Australian Government 'Ecotender').

Biosequestration

Biosequestration offers the greatest immediate potential for the absorption and removal of CO_2 from the atmosphere. A program developed from the Victorian Government's former Carbon Tender (now closed) (Victorian Government) could complement ClimateCare.

CarbonTender was a program to undertake carbon offset contracts with landholders to revegetate areas on their property using permanent native vegetation. As well as 'absorbing' carbon dioxide, these carbon sinks also help restore local ecosystems. Sinks could be located to connect and buffer existing remanent vegetation, and make natural environments more resilient to climate change.

In addition, CarbonTender offered landholders the potential for two new income streams:

- Guaranteed performance-based payments from the state government for five years;

- Future income opportunities from carbon trading - already a reality in some markets.

Industry engagement

The engagement of industry is a key to the success of meeting CPRS objectives. Industry is a major consumer of energy, crucial to generating the surpluses on which society depends and employs a large part of the paid workforce. Enterprises are among the social actors best able to make significant efficiencies in the use of energy and also the most vulnerable to adverse impacts if ill-prepared.

It is in the national interest that corporations and their directors and senior executives be engaged by the regulator and assisted in the development of strategies that re-direct investment into sustainable goods, services, exports and imports, in the same way as it is proposed communities be engaged.

ClimateCare has the potential to engage a wider range of enterprises than Landcare and to play a valuable role in assisting them to make the sometimes difficult transitions to the production and supply of low carbon goods and services.

Conclusion

ClimateCare is a public-community-partnership designed to bridge the gap between government policy making and policy acceptance and implementation at community level. It builds on sense-making and other theoretical foundations, empirical research findings and tried and proven models of public-community partnership that are familiar and respected within both government and the community.

In doing so, it represents the paradigmatic shift in the basic functions of society necessary at all levels of society to understand the nature of climate change and how it should be addressed by society.

ClimateCare can help facilitate the most difficult aspect of climate change and sustainability policy– the challenge of winning public support and commitment.

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Endnote

[i] Thomas J. Wilbanks, "Scale and Sustainability," Climate Policy 7 (2007), 278-287, 292. Climate change mitigation generally is assumed to be the context in the more theoretical parts of this article. Section 6, 284-285, considers "Climate Change Adaptation as an Example."